Platform Services
System Health Monitoring

APPLICATION NOTE

October 2015

Description: Introduction to System Health Monitoring.

Introduction

The System Health Monitor, a feature in ICONICS products version 10.9 or later, provides an easy to use but powerful configurable system to monitor the state of ICONICS components, operating system and hardware resources. It can notify the user of specific health states based on defined conditions and try to correct unhealthy states by restarting a services.

Architecture and Capabilities

The Health Monitor Service (HMS), which runs independent of other services such as Licensing and FrameWorX, is driven by the rules defined in a configuration file. It provides data about the health of a system via data points and events for client modules.

HMS is based on high-performance dashboards for visualization. It reads input data from system performance counters and data points from platform services (when available) to evaluate rules. On these inputs an aggregate function may be applied in order to filter-out unwanted or extreme values.

Output rules can be configured to take one or more values and determine if they are in an unhealthy state. When an unhealthy state occurs the rule can do any of the following:

- Log an event to the Windows Event Log
- Send an AE alarm to alarm clients subscribed to the HMS event server
- Restart a specific Windows service, either immediately or at a given time

The rule can also expose the result of its expression as a data point, which can be displayed on a screen or otherwise used to perform your own calculations and actions.

Configuration

Counters, data points, rules, and parameters for HMS are configured via Workbench under Platform Services → FrameWorX → Health Monitor Settings.

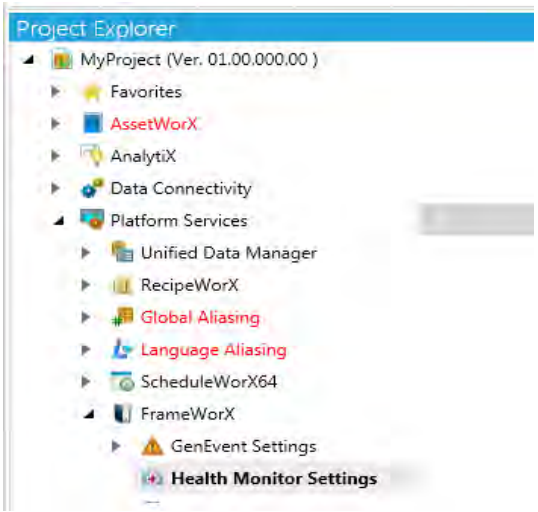

Figure 1 – Health Monitor Settings in Workbench

The configuration is physically stored by default at C:\Program Files\ICONICS\GENESIS64\Components\HealthMonitor.config.xml.

> **NOTE:** By default there is a 10 second data collection and evaluation for the HMS. This can be adjusted, but note that a higher update rate will cause more CPU load.

Rules

Each rule consists of a name, expression output value, the threshold for determining the unhealthy state, and the action or actions that will occur upon entering the unhealthy state.

A rule expression can only use predefined parameters, data points and performance counters.

Parameters

Parameters can be used in:

- Rule expressions
  - Syntax: {{Param/*param_name*}}
- Rule threshold, severity and service name
  - Syntax: <<*param_name*>>
- Performance counter definitions (category, counter name, instance)
  - Syntax: <<*param_name*>>
- Data Point Name
  - Syntax: <<*param_name*>>

Data Points

This defines FrameWorX Server data points to which HMS can used in rule expression such as threshold or severity. Aggregate function can also be applied.

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Counters

This defines the Windows Performance Counters which HMS can use in rule expressions. Aggregate function can also be applied.

Dashboards

The HMS comes pre-configured with dashboards for visualization of system health. These dashboards can be accessed in GraphWorX64 runtime mode using the System Health button on the ribbon.

The main dashboard screen (GwxSystemHealth.gdfx) and other associated files are stored by default in:
C:\Program Files\ICONICS\GENESIS64\Components

Dashboard screens are divided into three levels. The main dashboard shows a top level overview of the system health.

Figure 2 - System Health Monitor main screen

Clicking on the appropriate smart tile in the upper left of the main dashboard will bring you to the overview pages for the ICONICS Platform Services and other modules.

A detailed overview is available by clicking on the appropriate smart tile on a second level screen.

Network Interface Utilization Information

In order to monitor and visualize your network utilization we need to specify the appropriate network adapter name in the Health Monitor Parameter configuration. To do this, go Workbench →Platform Services → FrameWorX → Health Monitor Settings. Navigate to the Parameters tab. Find "SystemNetworkInterfaceName" and enter your network adapter name here. Make sure to hit Apply when you are finished.

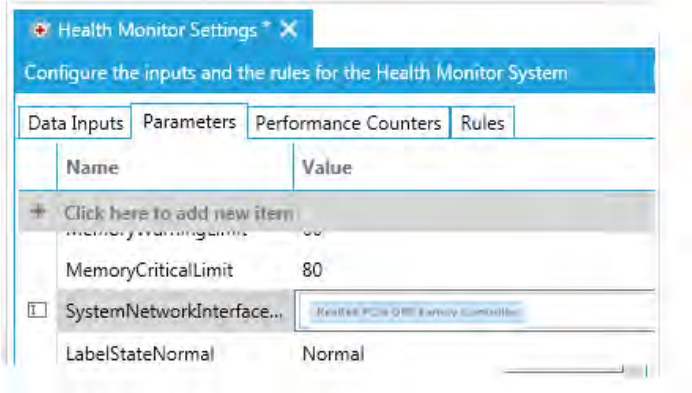

Figure 3 - Specifying the network adapter name

If you are not sure what name to enter, you can find it by going to the Windows Network Connections control panel and looking for your network device, as show in Figure 4.

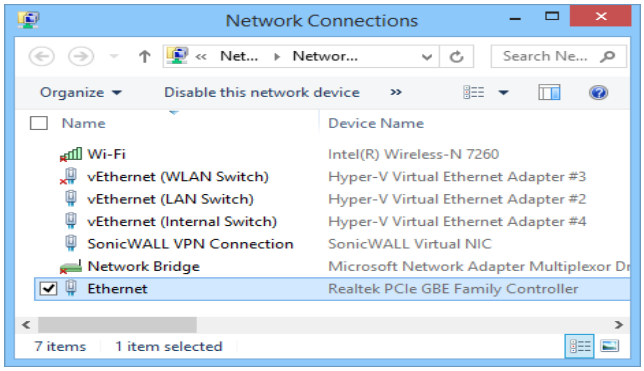

Figure 4 - Network Connections control panel